

INDIVIDUAL INCOME TAX

(CONSENSUS FORECASTING GROUP)

THOMAS JONES, PH.D.
AUGUST, 13, 2021

Office of State Budget Director

IIT Receipts History

(\$ millions)

2

	IIT	% chg
FY18	4,603.6	4.8
FY19	4,544.7	-1.3
FY20	4,765.2	4.9
FY21	5,143.8	7.9
Q1	1,184.7	4.5
Q2	1,153.2	5.5
Q3	1,182.6	4.8
Q4	1,623.3	15.1

Methodology

3

Withholding = f(KY Wages and Salaries)

Range: 2001 Q1 to 2021 Q2

Seasonally Adjusted

First Differences

AR(1)

Declarations = 3-yr moving average

+\$20 million to FY22

Methodology cont.

4

NetReturns = 3-yr moving average

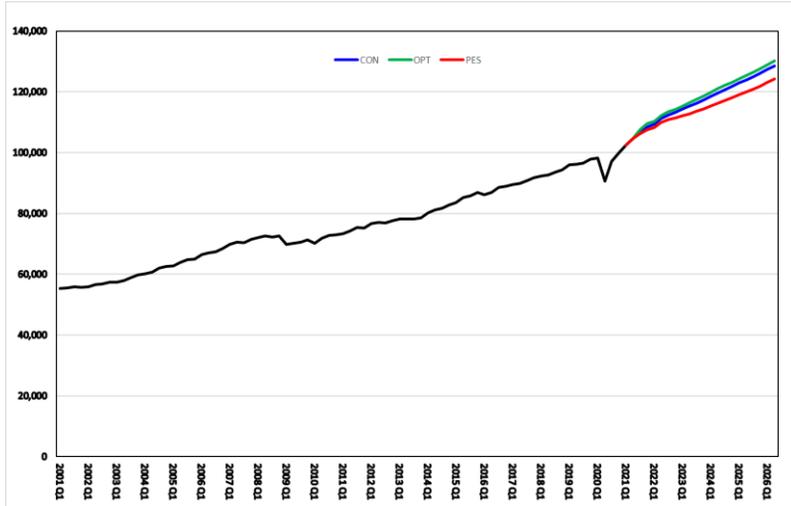
-\$93 million UI income

Fiduciary = 3-yr moving average

Kentucky Wages and Salaries

(\$ millions, SAAR)

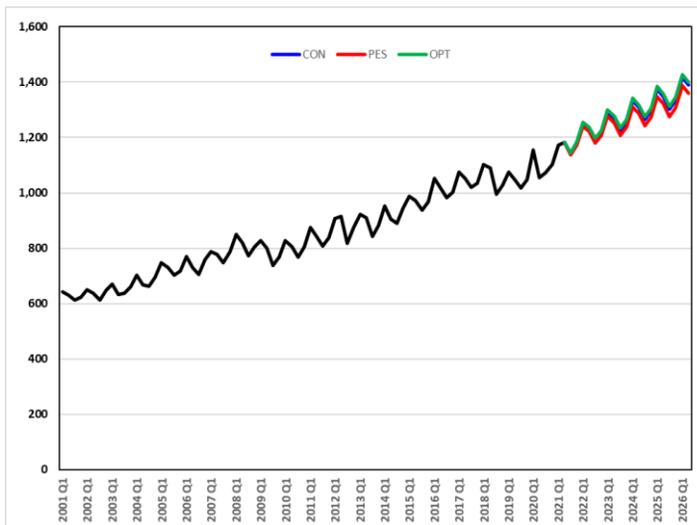
5



Withholding Forecast

(\$ millions)

6



Withholding Forecast

(\$ millions)

7

	CON	% chg	PES	% chg	OPT	% chg
FY18	4,248.4	3.3	4,248.4	3.3	4,248.4	3.3
FY19	4,144.7	-2.4	4,144.7	-2.4	4,144.7	-2.4
FY20	4,276.0	3.2	4,276.0	3.2	4,276.0	3.2
FY21	4,530.2	5.9	4,530.2	5.9	4,530.2	5.9
FY22	4,795.8	5.9	4,772.9	5.4	4,822.5	6.5
FY23	4,972.6	3.7	4,918.5	3.1	5,000.1	3.7
FY24	5,124.9	3.1	5,043.0	2.5	5,160.5	3.2
FY25	5,285.1	3.1	5,184.2	2.8	5,321.8	3.1
FY26	5,445.5	3.0	5,331.2	2.8	5,485.6	3.1

Declarations Forecast

(\$ millions)

8

	DECL	% chg
FY18	617.1	13.8
FY19	540.1	-12.5
FY20	523.7	-3.0
FY21	611.1	16.7
FY22	578.3	-5.4
FY23	571.0	-1.3
FY24	586.8	2.8
FY25	578.7	-1.4
FY26	578.8	0.0

Net Returns Forecast

(\$ millions)

9

	NETR	% chg
FY18	-265.6	0.8
FY19	-143.1	-46.1
FY20	-35.6	-75.1
FY21	3.3	-109.3
FY22	-155.5	-4,815.2
FY23	-133.2	-14.3
FY24	-109.8	-17.6
FY25	-85.2	-22.4
FY26	-59.4	-30.3

Fiduciary Forecast

(\$ millions)

10

	FID	% chg
FY18	3.7	107.3
FY19	3.0	-19.1
FY20	1.1	-61.7
FY21	-0.8	-168.6
FY22	1.1	-242.2
FY23	0.5	-55.9
FY24	0.3	-44.2
FY25	0.6	128.6
FY26	0.5	-26.0

IIT Forecast

(\$ millions)

11

	CON	% chg	PES	% chg	OPT	% chg
FY18	4,603.6	4.8	4,603.6	4.8	4,603.6	4.8
FY19	4,544.7	-1.3	4,544.7	-1.3	4,544.7	-1.3
FY20	4,765.2	4.9	4,765.2	4.9	4,765.2	4.9
FY21	5,143.8	7.9	5,143.8	7.9	5,143.8	7.9
FY22	5,189.2	0.9	5,166.3	0.4	5,215.9	1.4
FY23	5,362.1	3.3	5,308.0	2.7	5,389.6	3.3
FY24	5,564.8	3.8	5,482.9	3.3	5,600.4	3.9
FY25	5,737.2	3.1	5,636.4	2.8	5,773.9	3.1
FY26	5,920.8	3.2	5,806.5	3.0	5,960.9	3.2

Legislation Adjustments

(\$ millions)

12

FY22 -\$30.5 million

FY23 -\$48.8 million

FY24 -\$37.4 million

FY25 -\$42.0 million

FY26 -\$44.6 million

COAL SEVERANCE TAX

(CONSENSUS FORECASTING GROUP)

THOMAS JONES, PH.D.
AUGUST, 13, 2021

Office of State Budget Director

Coal History

(\$ millions)

14

DATE	COAL	% chg
FY18	89.6	-10.8
FY19	92.9	3.6
FY20	58.8	-36.7
FY21	56.1	-4.7
Q1	12.1	-31.1
Q2	16.7	12.7
Q3	13.5	-14.5
Q4	13.8	29.2

Energy Markets Information

15

- Recent improvement in coal severance receipts
- Coal prices rising through 2025Q1
- Prices fall slightly from 2025Q2 to 2026Q2
- Oil prices flat through most of the forecast horizon
- Natural gas prices slightly declining through the forecast horizon

Methodology

16

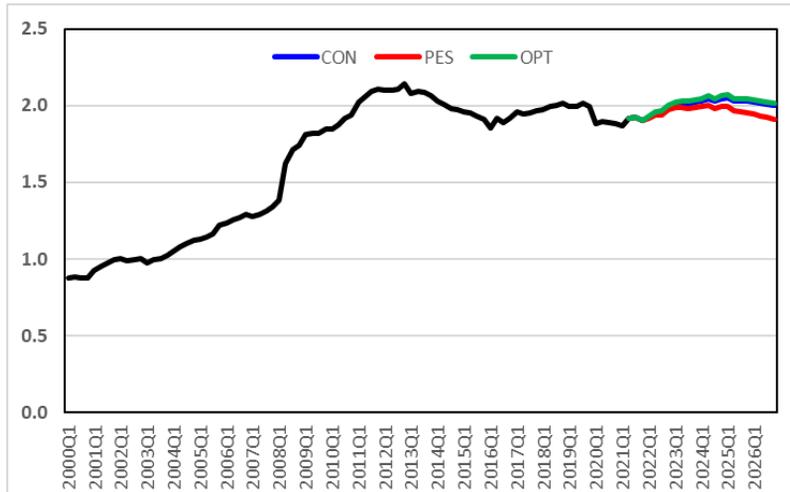
Coal Receipts = f(PPI Coal, WTI Price of Oil, Henry Hub Price of Natural Gas, US Personal Income)

- * Range: 2001 Q1 to 2021 Q2
- * All Seasonally Adjusted Variables
- * First Differences

Producer Price Index for Coal

(1982 = 1.00, SA)

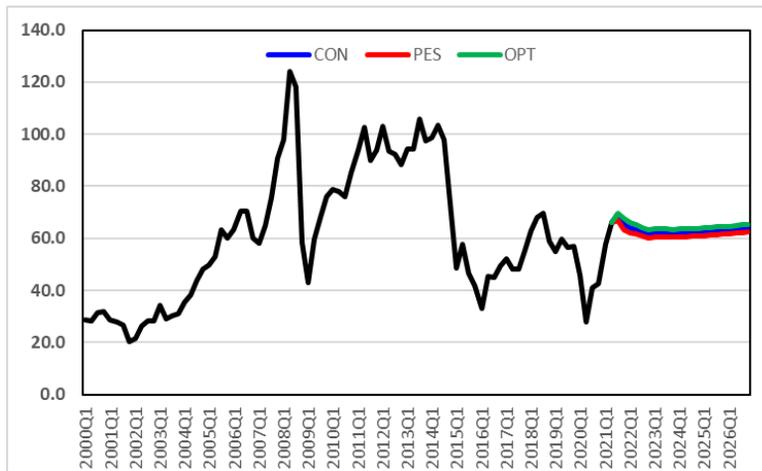
17



Price of West Texas Intermediate Oil

(\$)

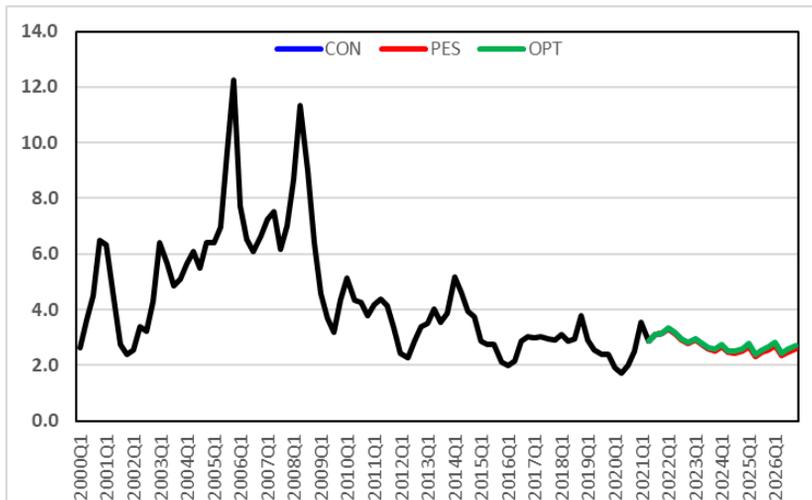
18



Henry Hub Price of Natural Gas

(\$)

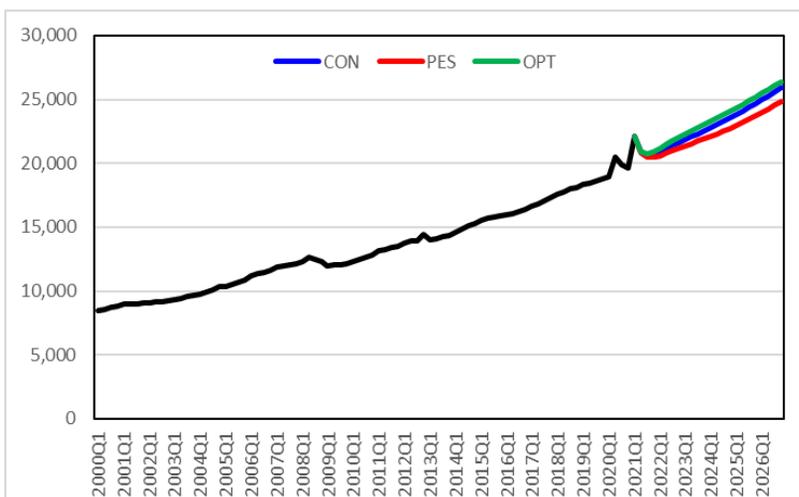
19



US Personal Income

(\$ billions, AR)

20



Coal Forecasts

(\$ millions)

21

	<u>FY22 % chg</u>		<u>FY23 % chg</u>		<u>FY24 % chg</u>		<u>FY25 % chg</u>		<u>FY26 % chg</u>	
CON	67.7	20.8	61.0	-9.9	59.1	-3.1	56.9	-3.7	50.2	-11.8
PES	65.8	17.4	53.2	-19.2	46.8	-12.0	39.2	-16.3	26.9	-31.3
OPT	69.6	24.1	68.7	-1.3	68.7	0.1	67.0	-2.6	59.7	-10.8

22

SALES TAX

CONSENSUS FORECASTING GROUP

GREG HARKENRIDER
AUGUST 13, 2021

Office of State Budget Director

Current Trends in the Sales Tax

23

- FY21 growth was 12.0 percent
- Highest growth rate since FY91, when the sales tax rate was increased from 5 percent to 6 percent
- When the CFG met on December 4, sales tax growth through November was 6.3 percent in FY21
- After the meeting, sales taxes grew 16.4 percent from December to June in FY21

Suspected Noise in the Sales Tax

24

- FY21 growth was 12.0 percent
 - ▣ Sales tax base has been expanding in recent years
 - Adding Services
 - Aggressively taxing online sales
 - Slowly changing to a consumption tax state and away from income taxes
 - ▣ Kentucky received considerable amounts of federal fiscal stimulus above the projected amounts
 - Direct stimulus checks
 - Unemployment insurance
 - Payroll protection from PPP Loans
 - Other exogenous spending related to federal aid
- The first bullet is structural and will persist. The second bullet is transitory. Trying to separate these factors

Sales Tax Advancing Sectors

Sorted by NAICS code, Source: Kentucky DOR

25

NAICS Group	FY 2020	FY 2021	Difference	Growth
Nonstore Retailers	\$216,567,062	\$357,589,221	\$141,022,159	65.1%
Building Material and Garden Equipment and Supplies Dealers	\$287,442,512	\$339,137,703	\$51,695,192	18.0%
General Merchandise Stores	\$461,460,309	\$502,953,507	\$41,493,199	9.0%
Merchant Wholesalers, Durable Goods	\$256,310,733	\$288,526,208	\$32,215,474	12.6%
Motor Vehicle and Parts Dealers	\$167,619,137	\$192,809,875	\$25,190,739	15.0%
Clothing and Clothing Accessories Stores	\$111,158,329	\$135,070,738	\$23,912,409	21.5%
Food and Beverage Stores	\$174,579,486	\$198,237,040	\$23,657,554	13.6%
Miscellaneous Store Retailers	\$142,820,131	\$161,899,599	\$19,079,469	13.4%
Sporting Goods, Hobby, Musical Instrument, and Book Stores	\$61,447,337	\$77,753,071	\$16,305,734	26.5%
Professional, Scientific, and Technical Services	\$84,400,385	\$98,902,915	\$14,502,530	17.2%
Couriers and Messengers	\$1,862,867	\$15,579,062	\$13,716,195	736.3%
Telecommunications	\$133,796,864	\$145,863,166	\$12,066,303	9.0%
Gasoline Stations	\$95,693,876	\$105,598,111	\$9,904,235	10.3%
Electronics and Appliance Stores	\$79,464,957	\$88,158,631	\$8,693,674	10.9%
Furniture and Home Furnishings Stores	\$58,037,485	\$66,378,941	\$8,341,455	14.4%
Utilities	\$169,543,784	\$177,052,303	\$7,508,519	4.4%
Food Service and Drinking Places	\$414,538,987	\$421,239,709	\$6,700,722	1.6%
Computer and Electronic Product Manufacturing	\$34,390,396	\$40,581,560	\$6,191,164	18.0%
Other Information Services	\$10,767,108	\$16,613,863	\$5,846,755	54.3%

Sales Tax Declining Sectors

Sorted by NAICS code, Source: Kentucky DOR

26

NAICS Group	FY 2020	FY 2021	Difference	Growth
Personal and Laundry Services	\$69,617,381	\$32,769,385	-\$36,847,996	-52.9%
Accommodation	\$67,572,629	\$48,135,822	-\$19,436,807	-28.8%
Motion Picture and Sound Recording Industries	\$6,685,193	\$1,414,997	-\$5,270,196	-78.8%
Primary Metal Manufacturing	\$31,283,130	\$27,429,947	-\$3,853,183	-12.3%
Transportation Equipment Manufacturing	\$24,199,237	\$20,465,904	-\$3,733,333	-15.4%
Fabricated Metal Product Manufacturing	\$24,650,637	\$21,714,445	-\$2,936,192	-11.9%
Performing Arts, Spectator Sports, and Related Industries	\$6,641,246	\$3,774,076	-\$2,867,170	-43.2%
Heavy and Civil Engineering Construction	\$16,837,669	\$15,188,339	-\$1,649,330	-9.8%
Machinery Manufacturing	\$24,279,115	\$23,032,779	-\$1,246,335	-5.1%
Executive, Legislative, and Other General Government Support	\$6,616,417	\$5,430,553	-\$1,185,864	-17.9%

Taxation of Internet Sales

(Millions \$, Source: Kentucky DOR)

27

	<u>June 2021</u>	<u>June 2020</u>
Marketplace Providers	\$14.3	\$15.4
Remote Retailers	<u>\$6.8</u>	<u>\$5.4</u>
Combined Sales Tax	\$21.0	\$20.7
	<u>FY 2021</u>	<u>FY 2020</u>
Marketplace Providers	\$181.7	\$110.4
Remote Retailers	<u>\$83.9</u>	<u>\$56.0</u>
Combined Sales Tax	\$265.6	\$166.4

Updating the Sales Tax Estimate

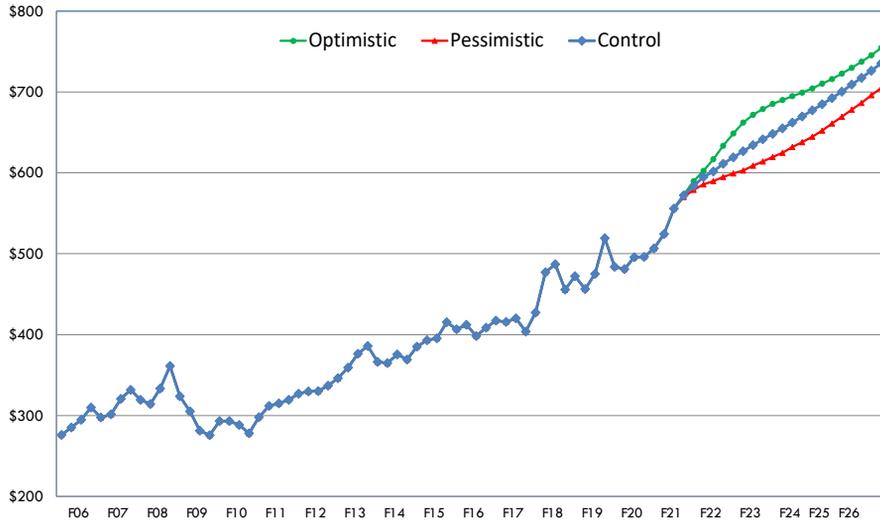
28

- Contacted several sales tax and econometrics experts
- Agreed that it was crucial to somehow account for stimulus money
- Re-ran the quarterly structural models, ARIMA, and VAR model
 - ▣ Tried to implement a KY transfers payment variable
 - Was not significant regardless of the sample size (got better with shorter sample)
 - ▣ Tried several structural variables (differenced data due to nonstationarity)
 - Income variables (KY wages, KY personal Income, US counterparts)
 - US State and Local Personal Taxes
 - Consumer spending – Durables, Non-durables, U.S. Retail sales
 - ▣ VAR has seasonally adjusted sales tax and KY personal income as dependent variables, several different exogenous or predetermined variables
 - ▣ Used a-theoretical Box Jenkins ARIMA models for control forecast alternative
- Ultimately adopted a blend of 4 models, primarily using GARCH estimation of structural and time series models

State & Local Government – Personal Tax Receipts

(Billions of Dollars, Annual Rate, BEA)

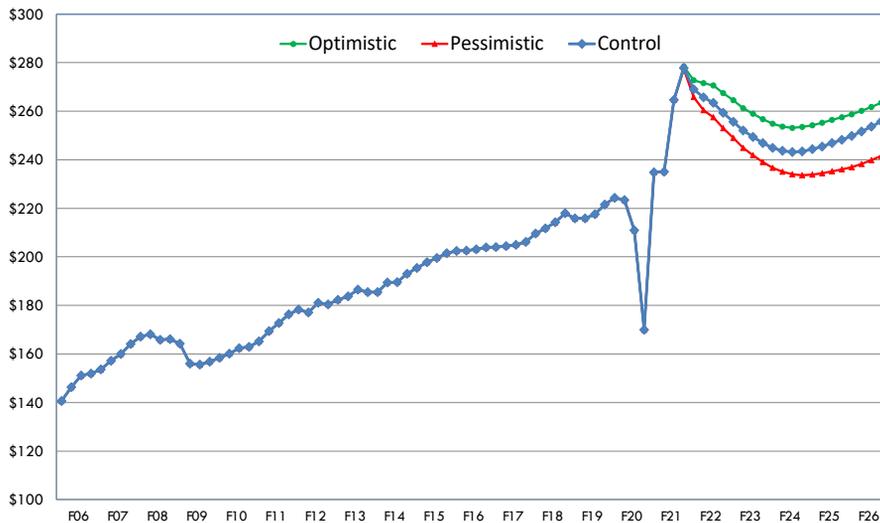
29



Consumer Spending – Other Durable Goods

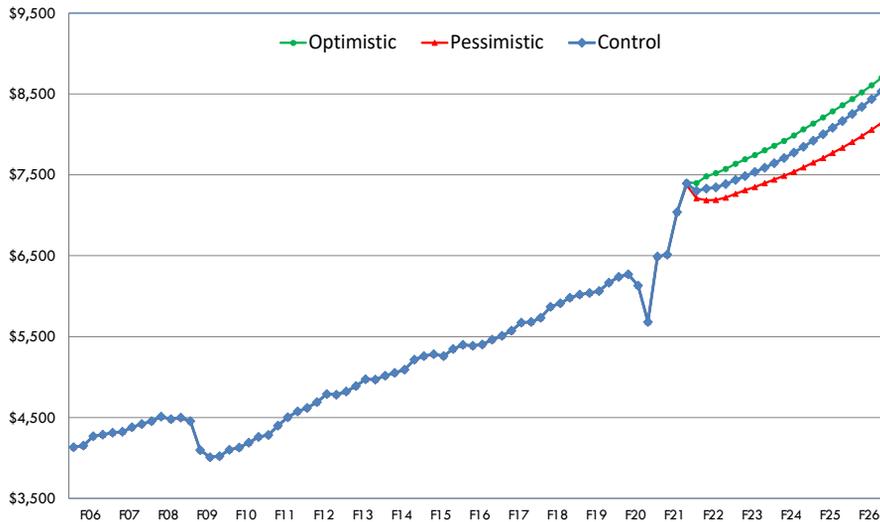
(Billions of Dollars, Annual Rate, BEA)

30



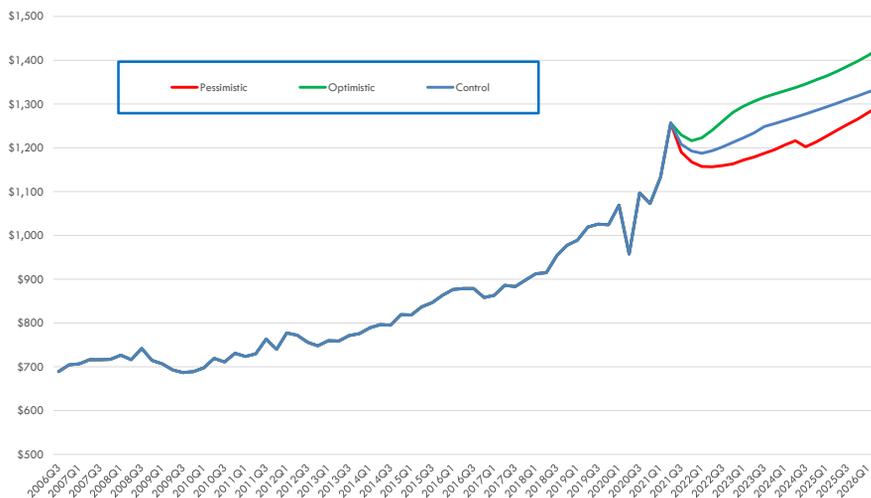
Retail Sales – Including Food Service (Billions of Dollars, Annual Rate, Census)

31



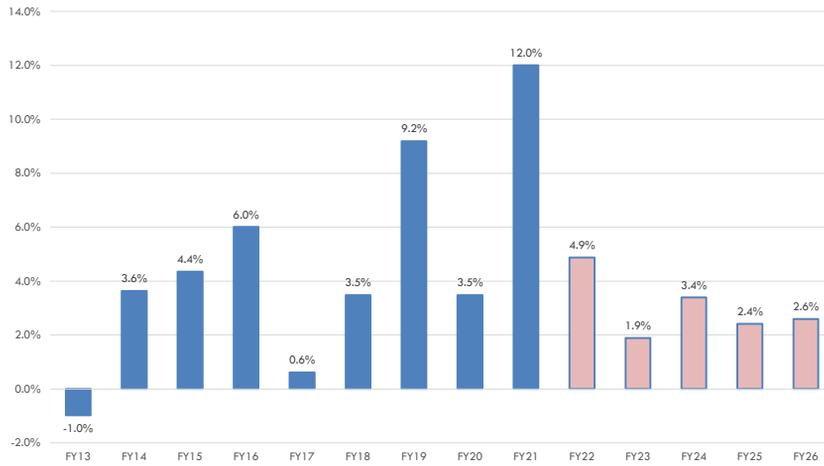
Sales Tax Alternative Forecasts (Millions \$)

32



Sales Tax Control Forecast (Fiscal Year growth rates)

33



Sales Tax Projections (Millions \$)

34

Fiscal Year	Control	Optimistic	Pessimistic
FY 2021	\$4,561.0 12.0%	\$4,561.0 12.0%	\$4,561.0 12.0%
FY 2022	\$4,780.9 4.9%	\$4,908.5 7.7%	\$4,671.4 2.5%
FY 2023	\$4,871.0 1.9%	\$5,142.1 4.8%	\$4,673.1 0.04%
FY 2024	\$5,036.0 3.4%	\$5,305.5 3.2%	\$4,805.4 2.8%
FY 2025	\$5,157.8 2.4%	\$5,439.0 2.5%	\$4,980.7 3.6%
FY 2026	\$5,291.6 2.6%	\$5,619.7 3.3%	\$5,196.2 4.3%

CORPORATION TAX FORECASTS

(CONSENSUS FORECASTING GROUP)

GENE ZAPARANICK-BROWN

AUGUST 13, 2021

Office of State Budget Director

Overview

36

- Actual versus estimated corporate tax revenues
 - ▣ FY21

- FY21 corporate tax receipts compared to previous years

- Five-Year Corporation Income Tax & LLET forecasts
 - ▣ Control, Optimistic and Pessimistic scenarios

Corporate Taxes– Actual v. Estimate

Millions \$

37

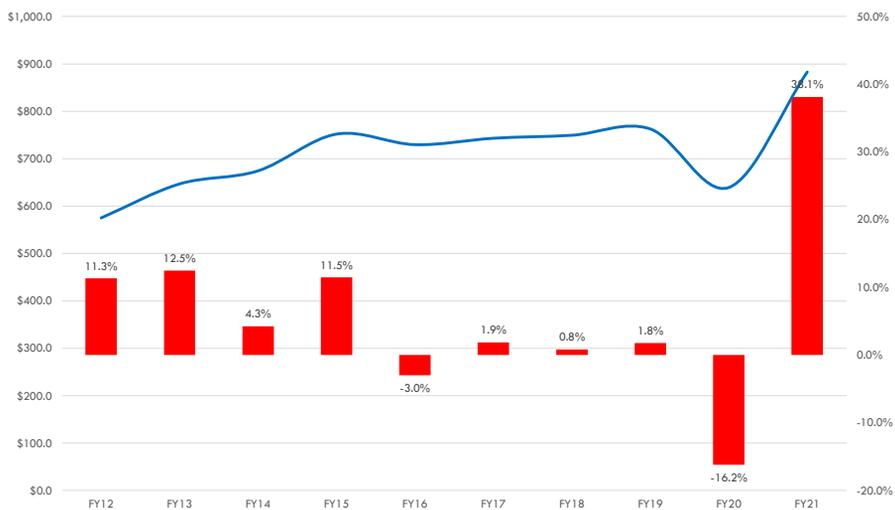
FY21

Actual	Estimate	Diff (\$)	Diff (%)
882.8	547.5	335.3	61.3

FY21 Corporate Receipts Compared to Previous Years

Millions \$

38



Forecasting Procedure

39

- Corporation income tax and LLET are forecasted as a single series
- There is an intermingling of receipts between the two accounts
 - ▣ Estimated payments submitted on same form
- The two data series are becoming less “clean”
- DOR no longer journal vouchering

Modeling

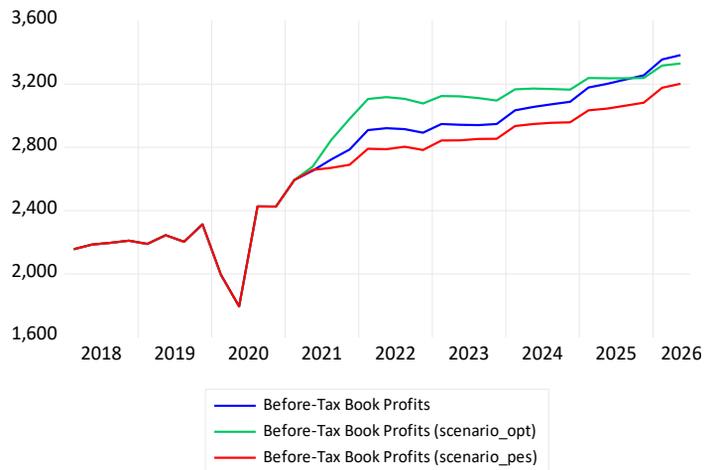
40

- Forecast a combined series of corporation income tax and LLET
- Estimate regression with data beginning 2010Q3
- LLET collections started in FY07 but took time to ramp up to full implementation
- Create a policy-neutral series – FY19 tax law
- Use US before tax book profits as a regressor

US Corporate Profits, Before Tax

Billions \$

41



Legislative Impacts

42

- Covered in detail earlier
- Focus on fiscal impacts:
 - ▣ FY22 -\$120.5M
 - ▣ FY23 -\$134.3M
 - ▣ FY24 -\$56.2M
 - ▣ FY25 -\$58.1M
 - ▣ FY26 -\$60.1M

Corporate/LLET Income Tax Forecast

Millions \$

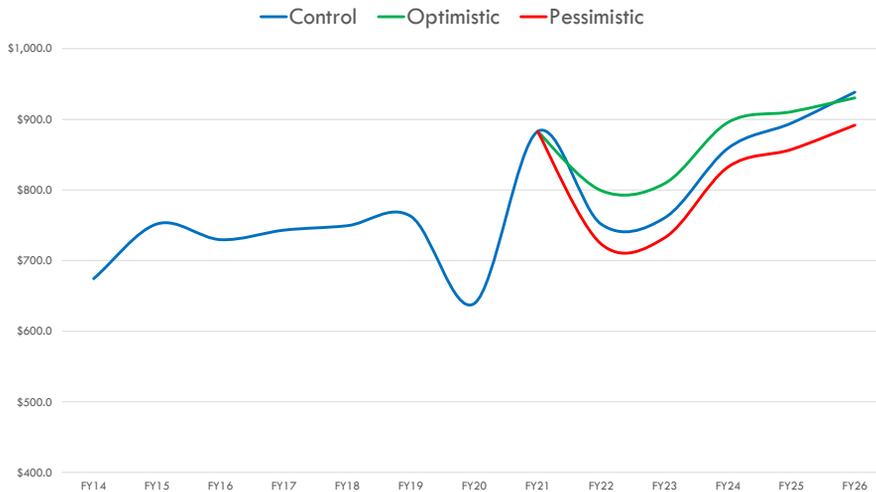
43

	FY22		FY23		FY24		FY25		FY26	
	Estimate	%Chg	Estimate	%Chg	Estimate	%Chg	Estimate	%Chg	Estimate	%Chg
Control	751.6	-14.9	760.4	1.2	859.0	13.0	894.6	4.1	938.4	4.9
Optimistic	799.1	-9.5	809.1	1.3	895.7	10.7	910.7	1.7	930.3	2.2
Pessimistic	723.5	-18.0	732.2	1.2	832.4	13.7	857.3	3.0	891.7	4.0

Corporate/LLET Income Tax Forecast

Millions \$

44



PROPERTY TAX FORECAST

(CONSENSUS FORECASTING GROUP)

GENE ZAPARANICK-BROWN

AUGUST 13, 2021

Office of State Budget Director

Property Tax— Actual v. Estimate, FY21

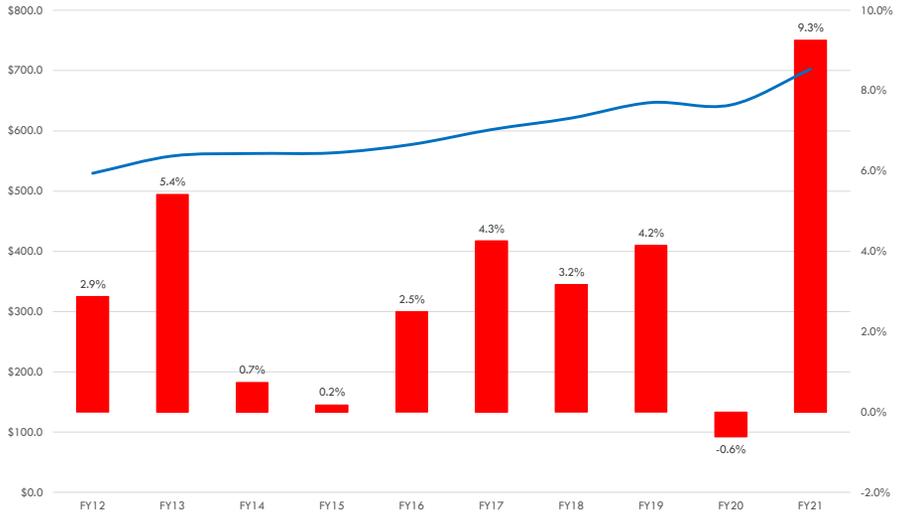
Millions \$

46

	Actual	Estimate	Diff (\$)	Diff (%)
REAL	317.4	313.4	4.0	1.3%
TANGIBLE	125.2	115.5	9.7	8.4%
MOTOR VEHICLE	166.3	152.2	14.1	9.2%
DELINQUENT	7.4	5.5	1.9	34.5%
OM TANGIBLE	10.6	6.5	4.1	63.1%
PUBLIC SERVICE	73.0	68.5	4.5	6.5%
OTHER	2.7	2.1	0.6	26.2%
TOTAL PROPERTY	702.5	663.7	38.8	5.8%

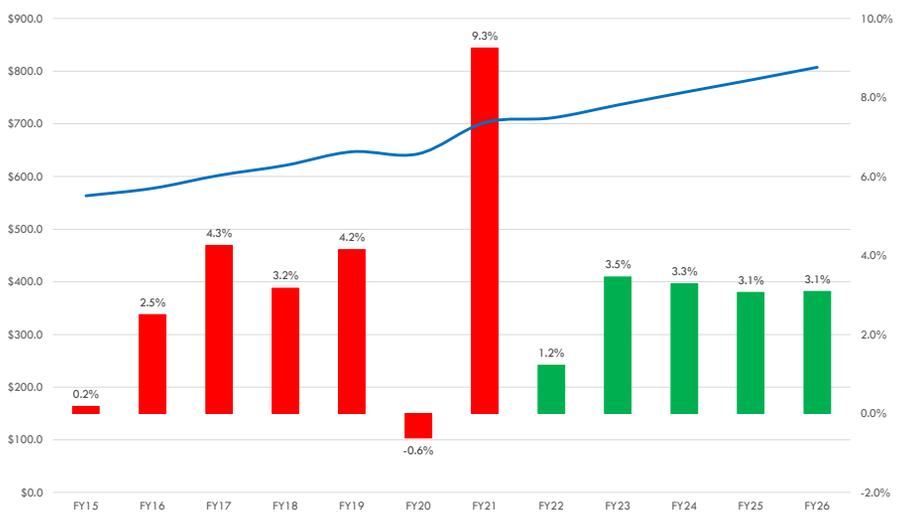
Property Tax Revenue Compared to Previous Years Millions \$

47



Property Tax Forecast, FY22 – FY26 Millions \$

48



Real Property

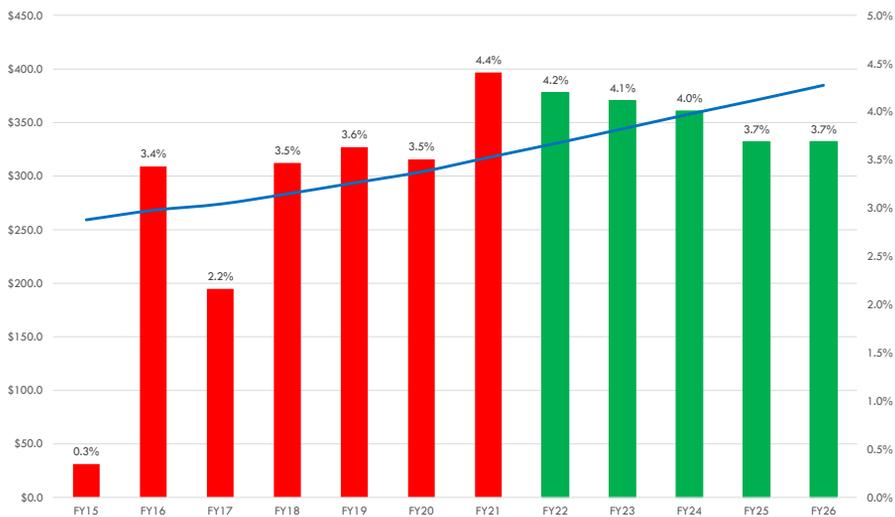
49

- Assessed by PVA at 100% of fair cash value as of January 1
 - ▣ Residential, Commercial and Farm
 - ▣ Homestead exemptions for elderly and disabled
 - ▣ \$40,500 for Tax Years 2021 and 2022
- HB 44 (1979) limits revenue growth to 4 percent annually
 - ▣ 2021 Rate lowered to 11.9 cents per \$100 of assessed value
 - ▣ First rate decline since 2008
- Majority of collections received November – January

Real Property Tax Forecast

Millions \$

50



Real Property Rate Calculation

51

- Tax rate is based on “allowable revenue”
 - ▣ Total real property assessments less new and TIF property times the current tax rate with adjustments for excess collections and exonerations
- Increase prior year’s allowable revenue 4% to get the current year
- 2021 tax rate is allowable revenue divided by the estimated 2021 real property assessments (net of new and TIF property)

How Can Real Property Tax Exceed 4%?

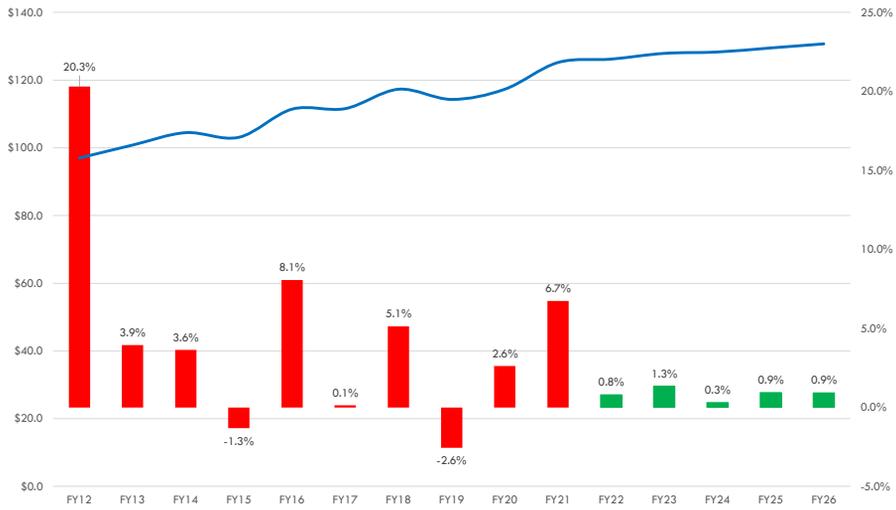
52

- While new and TIF property are excluded from the rate calculation, those properties are taxable
 - ▣ The assessed value of the excluded property increased from approximately \$5.7B to \$8.6B last year
- Why can’t we know exactly what revenues should be?
 - ▣ The rate setting process deals with gross revenues
 - ▣ Adjustments for cost of collections fees, discounts for early payment, nonpayments, etc.

Tangible Property Tax Forecast

Millions \$

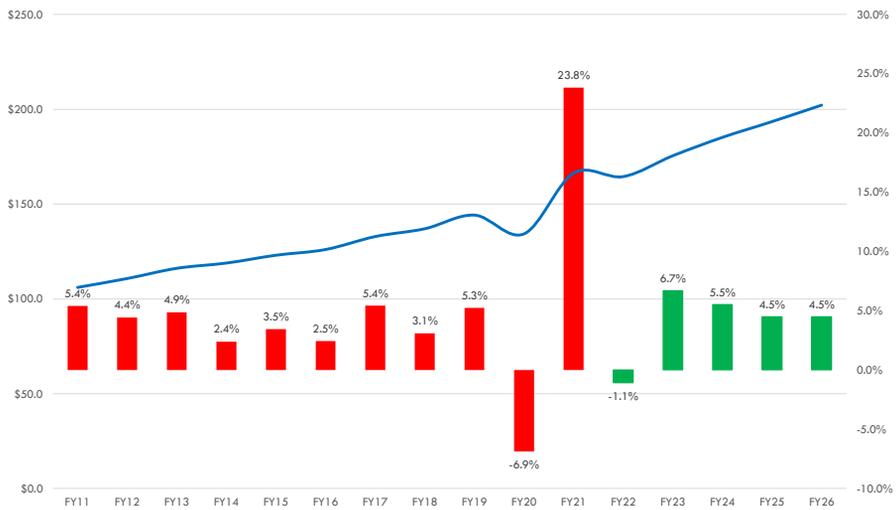
53



Motor Vehicle Property Tax Forecast

Millions \$

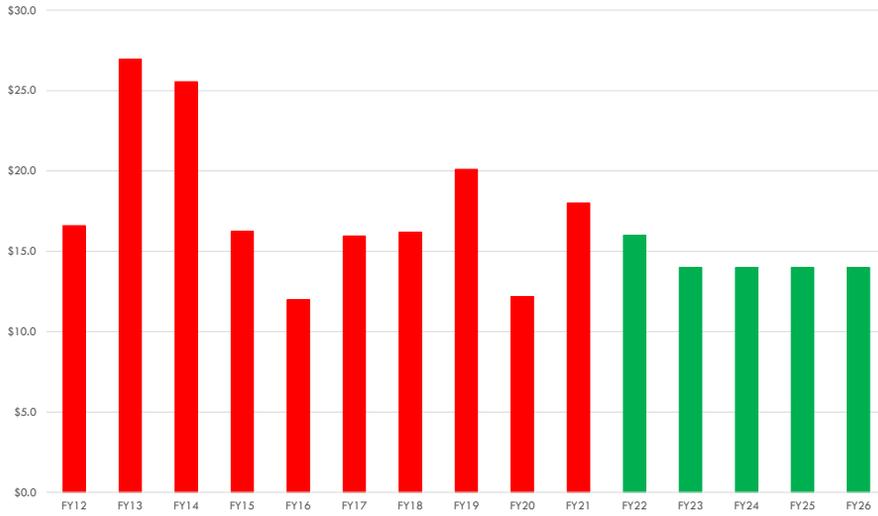
54



Omitted & Delinquent Property Tax Forecast

Millions \$

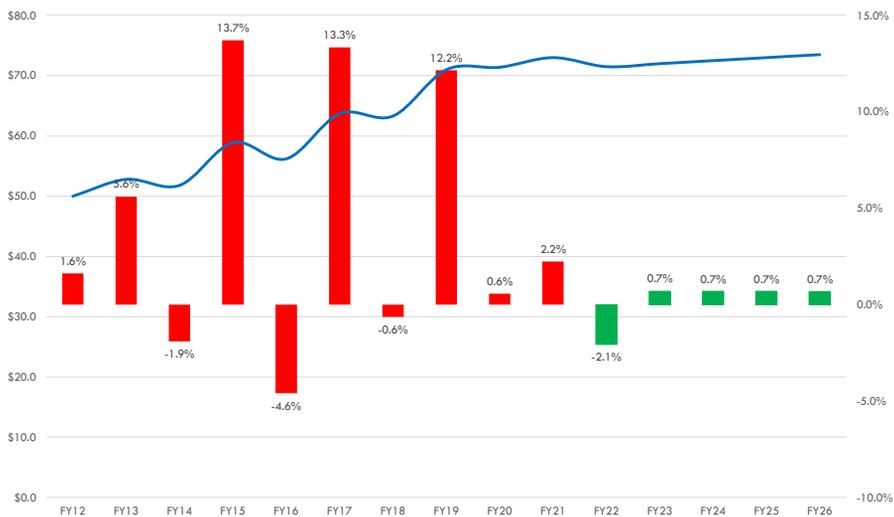
55



Public Service Company Tax Forecast

Millions \$

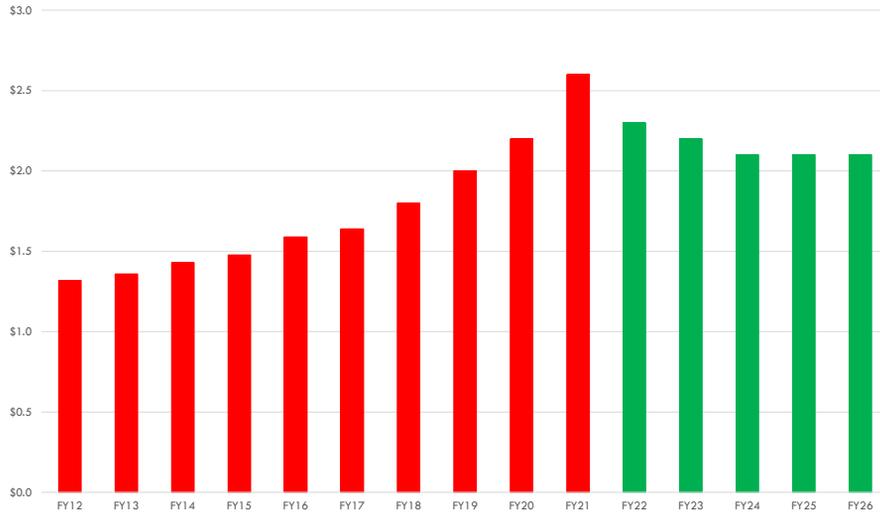
56



Other Property Tax Forecasts

Millions \$

57



Property Tax Forecast

FY22 – FY26

58

	FY22		FY23		FY24		FY25		FY26	
	\$M	%Chg								
REAL	330.5	4.2	344.1	4.1	357.9	4.0	371.1	3.7	384.8	3.7
TANGIBLE	126.2	0.8	127.9	1.3	128.3	0.3	129.5	0.9	130.7	0.9
MOTOR VEHICLE	164.5	(1.1)	175.5	6.7	185.2	5.5	193.5	4.5	202.2	4.5
DELINQUENT	7.0	(5.3)	6.0	(14.3)	6.0	0.0	6.0	0.0	6.0	0.0
OM TANGIBLE	9.0	(15.1)	9.0	(11.1)	8.0	0.0	8.0	0.0	8.0	0.0
PUBLIC SERVICE	71.5	(2.0)	72.0	0.7	72.5	0.7	73.0	0.7	73.5	0.7
OTHER	2.3	(11.5)	2.2	(4.3)	2.1	(4.5)	2.1	0.0	2.1	0.0
TOTAL PROPERTY	711.0	1.2	735.7	3.5	759.9	3.3	783.2	3.1	807.3	3.1

CIGARETTE TAX

CONSENSUS FORECASTING GROUP

GREG HARKENRIDER

AUGUST 13, 2021

Office of State Budget Director

Cigarette Trends

60

- FY20 cigarette tax revenue was 0.4% higher than FY19 on a tax rate-neutral basis
- FY21 cigarette tax revenue was 1.4% lower than FY20
- Discounting is beginning to abate, counter prices rising
- Seeing some movement down the product line
- Kentucky is beginning to see consumption declines, but not as great of declines as the U.S. average
- There were many a-theoretical ways to address market movements from the monthly data, so we did a control, optimistic, and pessimistic estimate

Cigarette Tax Projections

(Millions \$)

61

Fiscal Year	Control	Optimistic	Pessimistic
FY 2021	\$349.9 -1.4%	\$349.9 -1.4%	\$349.9 -1.4%
FY 2022	\$342.1 -2.2%	\$345.0 -1.4%	\$340.4 -2.7%
FY 2023	\$335.8 -1.8%	\$342.2 -0.8%	\$332.7 -2.3%
FY 2024	\$329.6 -1.8%	\$338.8 -1.0%	\$324.3 -2.5%
FY 2025	\$323.9 -1.7%	\$334.0 -1.4%	\$316.0 -2.6%
FY 2026	\$316.7 -2.2%	\$328.7 -1.6%	\$305.1 -3.4%

62

KENTUCKY LOTTERY CONSENSUS FORECASTING GROUP

GREG HARKENRIDER

AUGUST 13, 2021

Office of State Budget Director

Lottery Dividends

63

- **FY21 Kentucky Lottery Financials**
 - Instant tickets up 29.8% from FY20 (\$961.7 million total)
 - Draw games 17.9% higher than FY20 (\$508.0 million total)
 - I lottery instant play 256.7% higher than FY20 (\$118.6 million total)
 - Total ticket sales growth of 31.8%
 - In nominal terms, \$1,586.3 million in ticket sales
 - Nominal growth of \$382.9 million
 - Total Prizes up 33.2%
- **Dividend Performance**
 - FY20 -- \$271.4 million General Fund
 - FY21 -- \$289.1 million General Fund
 - FY21 -- \$347.1 million total dividend

Kentucky Lottery Forecast

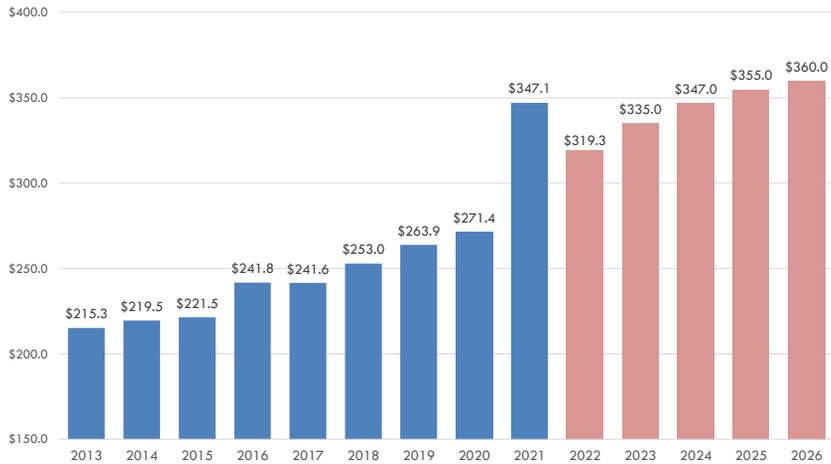
64

	<u>Ticket Sales</u>		<u>Dividend Transfers</u>	
FY 2021	1,586.3	31.8%	347.1	27.9%
FY 2022	1,591.8	0.3%	319.3	-8.0%
FY 2023	1,695.9	6.5%	335.0	4.9%
FY 2024	1,801.6	6.2%	347.0	3.6%
FY 2025	1,864.8	3.5%	355.0	2.3%
FY 2026	1,926.5	3.3%	360.0	1.4%

Kentucky Lottery Forecast

(Fiscal Years, Millions \$)

65



66

MISCELLANEOUS "OTHER" TAXES

(CONSENSUS FORECASTING GROUP)

GREG HARKENRIDER

AUGUST 13, 2021

Office of State Budget Director

Notes on Other Taxes

67

- “Other tax receipts grew \$78.9 million (or 10.4%) in FY21
- Several of the larger accounts grew sharply
 - ▣ Alcohol taxes up 9.2%
 - ▣ Other tobacco products grew 86.0%
 - ▣ Pari-Mutuel grew 98.0%
 - ▣ Telecommunications Taxes were up 8.6%
 - ▣ Abandoned Property grew 19.5%
- Reasons for growth
 - ▣ Some taxes had reduced base from FY20
 - ▣ Some accounts benefited from the stay-at-home and reopening stages of FY21

GF Control Estimates for the Largest “Other Taxes”

(Million of Dollars)

68

	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>	<u>FY25</u>	<u>FY26</u>
Insurance Premiums taxes	\$ 176.5	\$ 178.5	\$ 182.3	\$ 186.1	\$ 189.9	\$ 193.8
Alcohol Taxes	\$ 173.5	\$ 175.9	\$ 182.4	\$ 189.5	\$ 196.7	\$ 203.8
Bank Franchise Tax	\$ 116.0	\$ 0.0	\$ -	\$ -	\$ -	\$ -
Telecommunications Tax	\$ 73.9	\$ 76.2	\$ 81.8	\$ 87.4	\$ 92.9	\$ 98.5
Inheritance Tax	\$ 62.1	\$ 68.3	\$ 70.3	\$ 71.4	\$ 70.5	\$ 69.8
Abandoned Property	\$ 52.4	\$ 71.0	\$ 54.5	\$ 54.0	\$ 55.0	\$ 56.0
Other Tobacco	\$ 41.2	\$ 42.5	\$ 42.8	\$ 43.0	\$ 43.3	\$ 43.5
Pari-Mutuel	\$ 31.2	\$ 41.1	\$ 43.4	\$ 44.7	\$ 47.2	\$ 49.0

“Other” Receipts Forecast

(Millions \$)

69

